

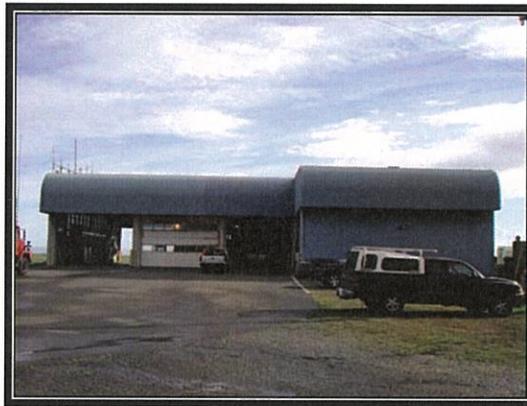
# **APPENDIX A**

## **PHH ARC ENVIRONMENTAL LTD. REPORT & TESTING RESULTS**

The Following report may include information on materials found in the facility that are outside of the Contract Area. Any removal of the hazardous materials that are mentioned in the report is limited to the Contract Area only unless noted elsewhere.



**Pre-renovation Hazardous  
Building Materials  
Survey Report**  
**Combined Services Building  
Sandspit Airport  
Sandspit, BC**



*Prepared for:*  
**Public Works and Government Services Canada**  
641 – 800 Burrard Street  
Vancouver, BC V6Z 2V8

Attention: Mr. David Mower  
*Architectural Technologist*

September 21, 2011

PHH ARC Project No. 12166C

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## EXECUTIVE SUMMARY

PHH ARC Environmental Ltd. (PHH ARC) was retained by Public Works & Government Services Canada (PWGSC) to conduct a pre-renovation hazardous building materials survey of the Combined Services Building located at the Sandspit Airport, Sandspit, BC. The survey was performed by Hien Nguyen, *Senior Project Coordinator* on September 8, 2011.

The objective of the survey was to identify specified hazardous building materials in preparation for building renovation. The results of this survey are intended to be used in conjunction with a properly developed specification.

### Summary of Findings

Hazardous Material	Type / Location
Asbestos-containing building materials (ACMs)	<p>Black window putty applied to the glazing of the man doors.</p> <p>Black window putty applied to the glazing of the overhead sectional doors.</p> <p>Black window putty applied to the glazing of the windows on the North and South facades.</p>
Lead in paints	<p>Cream paint applied to metal man door frames within Stair #2 (Loc. 7) was determined to contain 0.28% lead.</p> <p>Grey paint applied to fire man doors within Stair #2 (Loc. 7) was determined to contain 0.097%.</p> <p>Blue paint applied to metal corrugated panels was determined to contain 0.92% lead.</p> <p>White paint applied to drywall throughout renovation zone was determined to contain 0.19% lead.</p>
Lead products	Solid lead is present in emergency light batteries throughout the building.
Crystalline Silica	Concrete floor throughout the building contains crystalline silica.
Mercury	Mercury vapour is present in light tubes located throughout the building.
Polychlorinated biphenyls (PCBs)	The building has not been re-lamp with new energy efficient light ballast and lamps. Assume all light ballasts throughout the building to contain PCBs.
Halocarbons	Halocarbons were not observed.
Mould	Visible mould was not observed.

## EXECUTIVE SUMMARY – CONTINUED

### Summary of Recommendations

1. The hazardous materials identified must be safely contained, treated or removed if disturbed by renovation activity.
2. Prior to renovation work, prepare specifications for hazardous material removal. The specifications should include and address the scope of work, safe work practices, risk assessments and personal protective equipment and respiratory protection.
3. Retain a qualified consultant to specify, inspect and verify the successful handling and/or removal of all hazardous materials.
4. Prior to renovation work, remove, transport and dispose of ACMs, lead products, mercury, halocarbons, and PCBs in accordance with all federal and provincial regulations as listed in Appendix I.
5. During renovation work, follow safe work procedures when disturbing leaded paint, cutting or grinding concrete and other items containing crystalline silica in accordance with all federal and provincial regulations as listed in Appendix I.

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## 1.0 INTRODUCTION AND SCOPE

PHH ARC Environmental Ltd. (PHH ARC) was retained by Public Works & Government Services Canada (PWGSC) to conduct a pre-renovation hazardous building materials survey of the Combined Services Building located at the Sandspit Airport in Sandspit, BC. This report fulfills the requirements of Section 119 of the Workers' Compensation Act and Section 20.112 of the Occupational Health and Safety Regulation. This requires that the Owner report the presence of hazardous materials to the Prime Contractor to identify and eliminate or control hazards at the workplace.

The survey was performed by Hien Nguyen, *Senior Project Coordinator* on September 8, 2011. The surveyor was accompanied by Mr. Warren Foster of Transport Canada during the site work.

The hazardous materials included in this survey were;

- asbestos-containing building materials (ACMs)
- lead in paints and other lead products
- crystalline silica
- mercury
- polychlorinated biphenyls (PCBs)
- halocarbons
- mould

The scope of work was limited to the areas, items and materials designated for renovation ("the renovation zone"). The renovation zone is detailed in the email received from Mr. David Mower of PWGSC on August 31, 2011. The renovation zone included the following areas only:

- Roof including caulking and mastics;
- Exterior man doors including adjacent drywall taping compound on walls only;
- Overhead sectional doors including adjacent drywall taping compound on walls and pipe insulation on pipe fittings only;
- Exterior windows including adjacent drywall taping compound on walls only; and
- Exterior metal corrugated panels.

The objective of the survey was to identify specified hazardous building materials in preparation for building renovation. The results of this survey are intended to be used in conjunction with a properly developed building renovation specification.

## 2.0 GENERAL METHODOLOGY

A room-by-room survey (rooms, corridors, service areas, exterior, etc) of the renovation zone was conducted to identify the hazardous materials listed in the scope of work. This survey included an intrusive investigation to view concealed conditions behind solid walls, enclosures, shafts and chases.

Representative samples were collected and/or visual observation of the hazardous materials was conducted.

This survey excludes the following:

- owner or occupant articles (e.g. stored items, furniture, appliances, etc.);
- underground materials or equipment (e.g. vessels, drums, underground storage tanks, pipes, etc.); and
- areas, items, building materials outside of the renovation zone.

A unique location number was assigned to each room or homogenous area within the renovation zone. For further information on specific methodologies refer to Appendix V.

### 3.0 BUILDING INFORMATION

#### 3.1 Description

Item	Details
Construction Date	Circa 1970
Number of Phases	1
Number of Floors	1
Use and Size of Building	Combined Services Building ~11,000 ft <sup>2</sup>
Structure	Wood
Exterior Cladding	Metal corrugated panels
HVAC	Ceiling mounted heaters, baseboard electric heaters
Roof	Built-up roofing
Flooring	Vinyl tile, concrete
Interior Walls	Drywall, plywood
Ceilings	Drywall

#### 3.2 Inaccessible Areas

The following areas, locations or systems within the renovation zone were not accessible, operational or energized and were therefore not evaluated or tested as part of this survey.

Area or Room or Systems	Reason
No inaccessible areas or systems encountered	NA

#### 4.0 FINDINGS - IDENTIFIED HAZARDOUS MATERIALS

The following tables describe the hazardous materials identified in this survey. For complete test results (including materials determined to be a non-hazardous material), refer to Appendix II.

**Table 1 Asbestos-containing Materials**

System / Material	Locations	Sample #(s)	Asbestos Content / Type	Estimated Quantity
<b>Other:</b> Black window putty applied to the glazing of the man doors.	Throughout the renovation zone.	S006	5% Chrysotile	4 each
<b>Other:</b> Black window putty applied to glazing of the overhead sectional doors.	Throughout the renovation zone.	S007	5% Chrysotile	5 each
<b>Other:</b> Black window putty applied to glazing of the windows on the North and South facades.	Throughout the renovation zone.	VS007	5% Chrysotile	23 each

**Table 2 Lead in Paint<sup>1</sup>**

Component or Substrate and Colour	Location(s)	Sample #(s)	Test Result (%)	Estimated Quantity
Metal man door frame, cream	Stair #2	LB02	0.28	7 each 175 ft <sup>2</sup>
Metal fire man door, grey	Stair #2	LB04	0.097	7 each 224 ft <sup>2</sup>
Metal corrugated panels, blue	Exterior	LB05	0.92	Throughout renovation zone.

<sup>1</sup> WorkSafe BC has stated that lead concentrations as low as 0.009% (90 mg/kg) may present a risk to pregnant women and children. For lead in paints greater than or equal to 0.009%, refer to Appendix II-D.

Component or Substrate and Colour	Location(s)	Sample #(s)	Test Result (%)	Estimated Quantity
Drywall, white	Throughout the renovation zone.	LB08	0.19	Throughout renovation zone.

**Table 3 Lead Products**

Component	Estimated Quantity	Locations
Back-up emergency lights, lead-acid batteries.	All	Throughout the building.

**Table 4 Crystalline Silica**

Component	Locations
Concrete floor.	Throughout the building.

**Table 5 Mercury**

Component	Estimated Quantity	Locations
Light tubes	All	Throughout the building.

**Table 6 Polychlorinated Biphenyls**

Type	Estimated Quantity	Locations	Conclusions
Ballasts within light fixtures.	All	Throughout renovation zone.	The building has not been re-lamp with new energy efficient light ballast and lamps. Assume all light ballasts throughout the building to contain PCBs.

## 5.0 RECOMMENDATIONS

1. The hazardous materials identified must be safely contained, treated or removed if disturbed by renovation activity.
2. Prior to renovation work, prepare specifications for hazardous material removal. The specifications should include and address the scope of work, safe work practices, risk assessments and personal protective equipment and respiratory protection.
3. Retain a qualified consultant to specify, inspect and verify the successful handling and/or removal of all hazardous materials.
4. Prior to renovation work, remove, transport and dispose of ACMs, lead products, mercury and PCBs in accordance with all federal and provincial regulations as listed in Appendix I.
5. During renovation work, follow safe work procedures when disturbing leaded paint, cutting or grinding concrete and other items containing crystalline silica in accordance with all federal and provincial regulations as listed in Appendix I.

## 6.0 STANDARD LIMITATIONS

The work performed by PHH ARC was conducted in accordance with generally accepted engineering or scientific practices current in this geographical area at the time the work was performed. No warranty is either expressed or implied by furnishing written reports or findings. The Client acknowledges that subsurface and concealed conditions may vary from those encountered or inspected. PHH ARC can only comment on the environmental conditions observed on the date(s) the survey is performed. The work is limited to those materials or areas of concern identified by the Client or outlined in our proposal. Other areas of concern may exist but were not investigated within the scope of this assignment.

PHH ARC makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issue, regulatory statutes are subject to interpretation and these interpretations may change over time. PHH ARC accepts no responsibility for consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

The liability of PHH ARC, or its staff, will be limited to the lesser of the fees paid or actual damages incurred by the Client. PHH ARC will not be responsible for any consequential or indirect damages. PHH ARC is only liable for damages resulting from negligence of PHH ARC. All claims by the Client shall be deemed relinquished if not made within two years after last date of services provided.

Information provided by PHH ARC is intended for Client use only. PHH ARC will not provide results or information to any party unless disclosure by PHH ARC is required by law. Any use by a third party of reports or documents authored by PHH ARC or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. PHH ARC accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

## 7.0 CLOSURE

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**APPENDIX I**  
**REFERENCES**

1. Occupational Health and Safety Regulation, (B.C. Reg. 296/97, as amended), under WorkSafe BC.
2. Safe Work Practices for Handling Asbestos, WorkSafe BC, 2006 Edition.
3. Hazardous Waste Regulation, BC Ministry of Environment; including amendments up to B.C. Reg. 261/2006, September 21, 2006.
4. Ozone Depleting Substances and Other Halocarbons Regulation, B.C. Reg. 220/2006, Environmental Management Act.
5. PCB Regulations, SOR/2008-273, Canadian Environmental Protection Act.
6. Lead-Containing Paint and Coatings, Preventing Exposure in the Construction Industry, Worksafe BC, June 2011.
7. Transportation of Dangerous Goods Regulations SOR/2008-34, Transportation of Dangerous Goods Act.
8. Federal Register, 40 CFR Part 745 Lead; Identification of Dangerous Levels of Lead; Final Rule, Environmental Protection Agency, January 5, 2001.

**APPENDIX II**  
**HAZARDOUS MATERIALS TESTING RESULTS**

**APPENDIX II-A**  
**SUMMARY OF NON-ASBESTOS MATERIALS**

### Summary of Non-asbestos Materials

Material	Sample #(s)	Locations
<b>Floor:</b> Vinyl floor tiles.	S005	Stair #2 (Loc. 7)
<b>Floor:</b> Mastic on underside of floor tiles.*  * The results apply to only the areas in which mastic was sampled, and cannot be extrapolated to areas where similar vinyl floor tile is present.	S005	Stair #2 (Loc. 7)
<b>Ceiling:</b> Drywall.	VS009A-E	Stair #1 (Loc.2) and Stair #2 (Loc.7)
<b>Wall:</b> Perimeter drywall.	S009A-F	Throughout renovation zone.
<b>Structure:</b> Firestop material at wall and floor penetrations.	NA	None observed.
<b>Pipe:</b> Parging cement on pipe fittings.	S012A-B	Maintenance Garage (Loc. 1) and Fire Hall (Loc. 5)
<b>Pipe:</b> Parging cement on pipe fittings.	S013A-B	Maintenance Garage (Loc. 1)
<b>Pipe:</b> Preformed insulation on straight sections of hot and cold water system pipes.	Fibreglass Insulation	Throughout renovation zone.
<b>Pipe:</b> Cement.	NA	None Observed
<b>Pipe:</b> Tar mastic.	NA	None Observed
<b>Duct:</b> Paper wrap.	NA	None Observed
<b>Mechanical:</b> Preformed insulation.	NA	None Observed
<b>Other:</b> Roofing material.	S001	Rooftop (Loc. 8)
<b>Other:</b> Roofing material	S002	Lower level Rooftop (Loc. 9)
<b>Other</b> Grey caulking	S003	Rooftop (Loc. 8)
<b>Other:</b> Yellow caulking	S004	Rooftop (Loc. 8)
<b>Other:</b> Black mastic	S008	Rooftop (Loc. 8)

---

<b>Material</b>	<b>Sample #(s)</b>	<b>Locations</b>
<b>Other:</b> Grey window caulking	S010	ECG/Lecture Office (Loc. 3)
<b>Other:</b> Black window putty	S011	Chief Office (Loc. 4)

**APPENDIX II-B**  
**ASBESTOS SAMPLING LOG**

**Asbestos Sampling Log / Homogeneous Materials**

<b>Homogeneous Material*</b>	<b>Sample No.</b>	<b>Location</b>
<b>Other:</b> Roofing material	S001	Rooftop (Loc. 8)
<b>Other:</b> Roofing material	S002	Rooftop (Loc. 9)
<b>Other:</b> Grey caulking (on heater vent on roof)	S003	Rooftop (Loc. 8)
<b>Other:</b> Yellow caulking (on heater vent on roof)	S004	Rooftop (Loc. 8)
<b>Flooring:</b> Vinyl floor tile, 12x12, beige with grey streaks	S005	Stair #2 (Loc. 7)
<b>Other:</b> Black window putty	S006	Stair #2 (Loc. 7)
<b>Other:</b> Black window putty	S007	Maintenance Garage Door #2 (Loc. 1)
<b>Other:</b> Black Mastic (around roof hatch)	S008	Rooftop (Loc. 8)
<b>Wall:</b> Perimeter drywall	S009A-F	Throughout renovation zone
<b>Other:</b> Grey window caulking	S010	ECG/Lecture Office (Loc. 3)
<b>Other:</b> Black window putty	S011	Chief Office (Loc. 4)
<b>Pipe:</b> Parging cement on drain water pipe	S012A-B	Maintenance Garage Door #1 (Loc. 1)
<b>Pipe:</b> Parging cement on hot and cold water	S013A-B	Maintenance Garage (Loc. 1)

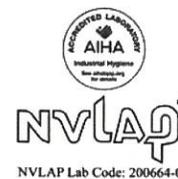
\* A homogenous material is defined as material that is uniform in texture and appearance, was installed at one time, and is unlikely to consist of more than one type or formulation of material.

**APPENDIX II-C**  
**ASBESTOS LABORATORY CERTIFICATE**



# Bulk Asbestos Analysis

By Polarized Light Microscopy  
EPA Method: 600/R-93/116 and 600/M4-82-020



**Customer:** PHH ARC Environmental  
Suite 406-13251 Delf Place  
Richmond, BC V6V2A2

**Attn:** Hien Nguyen  
Bryan Zecchel

**Lab Order ID:** 1112881

**Analysis ID:** 1112881PLM

**Date Received:** 9/13/2011

**Date Reported:** 9/14/2011

**Project:** Combined Services Building Sands

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S001 - A	Roofing material, Combined Services Building	None Detected	10% Fiber Glass	90% Other	Gray, Black Non Fibrous Heterogeneous
1112881PLM_1	shingle				Dissolved
S001 - B	Roofing material, Combined Services Building	None Detected	98% Cellulose	2% Other	Brown Fibrous Homogeneous
1112881PLM_21	insulation				Teased
S001 - C	Roofing material, Combined Services Building	None Detected	70% Cellulose	30% Other	Black Non Fibrous Heterogeneous
1112881PLM_22	felt				Dissolved
S001 - D	Roofing material, Combined Services Building	None Detected		100% Other	White Non Fibrous Homogeneous
1112881PLM_23	foam				Ashed
S002 - A	Roofing material, lower level front roof, Combined Services Building	None Detected	10% Fiber Glass	90% Other	Gray, Black Non Fibrous Heterogeneous
1112881PLM_2	shingle				Dissolved
S002 - B	Roofing material, lower level front roof, Combined Services Building	None Detected	98% Cellulose	2% Other	Brown Fibrous Homogeneous
1112881PLM_24	insulation				Teased
S002 - C	Roofing material, lower level front roof, Combined Services Building	None Detected	70% Cellulose	30% Other	Black Non Fibrous Heterogeneous
1112881PLM_25	felt				Dissolved
S002 - D	Roofing material, lower level front roof, Combined Services Building	None Detected		100% Other	White Non Fibrous Homogeneous
1112881PLM_26	foam				Ashed

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommended that analysis of floor tiles, vermiculite, and/or heterogeneous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Estimated MDL is 0.1%.

Bart Huber (27)

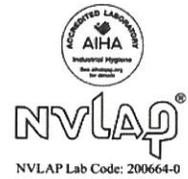
Analyst

Nathaniel Durham, MS or Approved Signatory



# Bulk Asbestos Analysis

By Polarized Light Microscopy  
EPA Method: 600/R-93/116 and 600/M4-82-020



**Customer:** PHH ARC Environmental  
Suite 406-13251 Delf Place  
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**Attn:** Hien Nguyen  
Bryan Zecchel

**Lab Order ID:** 1112881

**Analysis ID:** 1112881PLM

**Date Received:** 9/13/2011

**Date Reported:** 9/14/2011

**Project:** Combined Services Building Sands

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S003	Grey caulking on infrared heater vent on the roof, Combined Services Bldg	None Detected	5% Fiber Glass	95% Other	Gray Non Fibrous Homogeneous
1112881PLM_3					Dissolved
S004	Yellow caulking on infrared heater vent on the roof, Combined Services Bldg	None Detected		100% Other	Yellow Non Fibrous Homogeneous
1112881PLM_4					Dissolved
S005 - A	VFT (12x12 beige w/grey streaks) + black mastic within stair #2, Combined Services tile	None Detected		100% Other	Beige Non Fibrous Homogeneous
1112881PLM_5					Dissolved
S005 - B	VFT (12x12 beige w/grey streaks) + black mastic within stair #2, Combined Services mastic	None Detected		100% Other	Black Non Fibrous Homogeneous
1112881PLM_27					Dissolved
S006	Black Window Putty Loc. Exterior Door to Stair #2	5% Chrysotile	5% Cellulose	90% Other	Black Non Fibrous Heterogeneous
1112881PLM_6					Dissolved
S007	Window Putty Loc. Exterior Garage #2 Door	5% Chrysotile		95% Other	Gray Non Fibrous Heterogeneous
1112881PLM_7					Dissolved
S008	Black Mastic Loc. Around Roof Hatch	None Detected		100% Other	Black Non Fibrous Homogeneous
1112881PLM_8					Dissolved
S009A	DTC Perimeter Wall Loc. Above Exit Door at the Stair	None Detected		100% Other	White Non Fibrous Homogeneous
1112881PLM_9					Crushed

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Bart Huber (27)

Analyst

Nathaniel Durham, MS or Approved Signatory



# Bulk Asbestos Analysis

By Polarized Light Microscopy  
EPA Method: 600/R-93/116 and 600/M4-82-020



**Customer:** PHH ARC Environmental  
Suite 406-13251 Delf Place  
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**Attn:** Hien Nguyen  
Bryan Zecchel

**Lab Order ID:** 1112881  
**Analysis ID:** 1112881PLM  
**Date Received:** 9/13/2011  
**Date Reported:** 9/14/2011

**Project:** Combined Services Building Sands

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S009B	DTC Perimeter Wall Loc. Maintenance Garage	None Detected		100% Other	White Non Fibrous Homogeneous
1112881PLM_10					Crushed
S009C	DTC Perimeter Wall Loc. Chief Office	None Detected		100% Other	White Non Fibrous Homogeneous
1112881PLM_11					Crushed
S009D	DTC South Perimeter Wall Loc. Fire Hall	None Detected		100% Other	White Non Fibrous Homogeneous
1112881PLM_12					Crushed
S009E	DTC Perimeter Wall Loc. Staircase #1	None Detected		100% Other	White Non Fibrous Homogeneous
1112881PLM_13					Crushed
S009F	DTC Perimeter Wall Loc. Garage	None Detected		100% Other	White Non Fibrous Homogeneous
1112881PLM_14					Crushed
S010	Exterior Grey Window Caulking Loc. ECG/Liture Office	None Detected		100% Other	Gray Non Fibrous Homogeneous
1112881PLM_15					Ashed
S011	Black Window Putty Loc. Chief Office	None Detected		100% Other	Black Non Fibrous Heterogeneous
1112881PLM_16					Dissolved
S012A	Parging Cement On Drain Water Pipe Elbow Loc. Above Garage Door #1	None Detected	10% Cellulose 5% Fiber Glass	85% Other	Gray Non Fibrous Homogeneous
1112881PLM_17			Crushed		

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommended that analysis of floor tiles, vermiculite, and/or heterogeneous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Estimated MDL is 0.1%.

Bart Huber (27)

Analyst

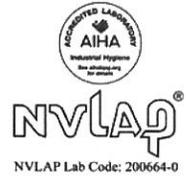
Scientific Analytical Institute, Inc. 302-L Pomona Dr. Greensboro, NC 27407 (336) 292-3888

Nathaniel Durham, MS or Approved Signatory



# Bulk Asbestos Analysis

By Polarized Light Microscopy  
 EPA Method: 600/R-93/116 and 600/M4-82-020



**Customer:** PHH ARC Environmental  
 Suite 406-13251 Delf Place  
 Richmond, BC V6V2A2

**Attn:** Hien Nguyen  
 Bryan Zecchel

**Lab Order ID:** 1112881

**Analysis ID:** 1112881PLM

**Date Received:** 9/13/2011

**Date Reported:** 9/14/2011

**Project:** Combined Services Building Sands

Sample ID	Description	Asbestos	Fibrous Components		Non-Fibrous Components		Attributes
Lab Sample ID	Lab Notes						Treatment
S012B	Parging Cement On Drain Water Elbow Loc. Above Garage Door #1	None Detected	10% 5%	Cellulose Fiber Glass	85%	Other	Gray Non Fibrous Homogeneous
1112881PLM_18							Crushed
S013A	Parging Cement On Hot and Cold Water Loc. Garage	None Detected	10% 5%	Cellulose Fiber Glass	85%	Other	Gray Non Fibrous Homogeneous
1112881PLM_19							Crushed
S013B	Parging Cement On Hot and Cold Water Loc. Garage	None Detected	10% 5%	Cellulose Fiber Glass	85%	Other	Gray Non Fibrous Homogeneous
1112881PLM_20							Crushed

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Bart Huber (27)

Analyst

Nathaniel Durham, MS or Approved Signatory

**APPENDIX II-D**  
**LEAD LABORATORY CERTIFICATE**



# Analysis for Lead Concentration in Paint Chips

by Flame Atomic Absorption Spectroscopy  
EPA SW-846 3rd Ed. Method No. 3050B/Method No. 7420



**Customer:** PHH ARC Environmental  
Suite 406-13251 Delf Place  
Richmond BC V6V2A2

**Attn:** Hien Nguyen

**Lab Order ID:** 1112886

**Analysis ID:** 1112886\_PBP

**Date Received:** 9/13/2011

**Date Reported:** 9/15/2011

**Project:** 12166C Combined Services Building

Sample ID	Description	Mass	Analytical Sensitivity	Concentration
Lab Sample ID	Lab Notes	(g)	(% by weight)	(% by weight)
LB01	Cap flashing loc roof top	0.0253	0.002%	0.006%
1112886PBP_1				
LB02	Cream on metal door frame loc stair #2	0.0639	0.002%	0.28%
1112886PBP_2				
LB03	Blue on fire door loc stair #2	0.0543	0.002%	0.048%
1112886PBP_3				
LB04	Grey on fire door loc stair #2	0.0278	0.005%	0.097%
1112886PBP_4				
LB05	Blue/white exterior metal ladding loc outside exterior	0.0502	0.003%	0.92%
1112886PBP_5				
LB06	White on garage metal door frame loc garage door #1	0.0644	0.002%	0.049%
1112886PBP_6				
LB07	White on galvanized garage door loc garage door #2	0.0539	0.002%	<0.007%
1112886PBP_7				
LB08	White on DTC perimeter wall loc stair #2	0.0505	0.003%	0.19%
1112886PBP_8				
LB09	Off white exterior metal cladding loc exterior combined building	0.1051	0.001%	0.007%
1112886PBP_9				

Scientific Analytical Institute successfully participates in the AIHA ELPAT for Lead program. ELPAT Laboratory ID: 173190 (R.L. = 0.01 wt.%)  
The quality control samples run with the samples in this report have passed all AIHA required specifications unless otherwise noted.

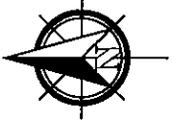
Robert Duke (9)

Analyst

Scientific Analytical Institute, Inc. 302-L Pomona Dr. Greensboro, NC 27407 (336) 292-3888

Approved Signatory

**APPENDIX III**  
**DRAWINGS**



LEGEND

- (XX) LOCATION NUMBER
- ASBESTOS BULK SAMPLE NUMBER
- ⊙ LEAD BULK SAMPLE NUMBER



THE PINCHIN GROUP

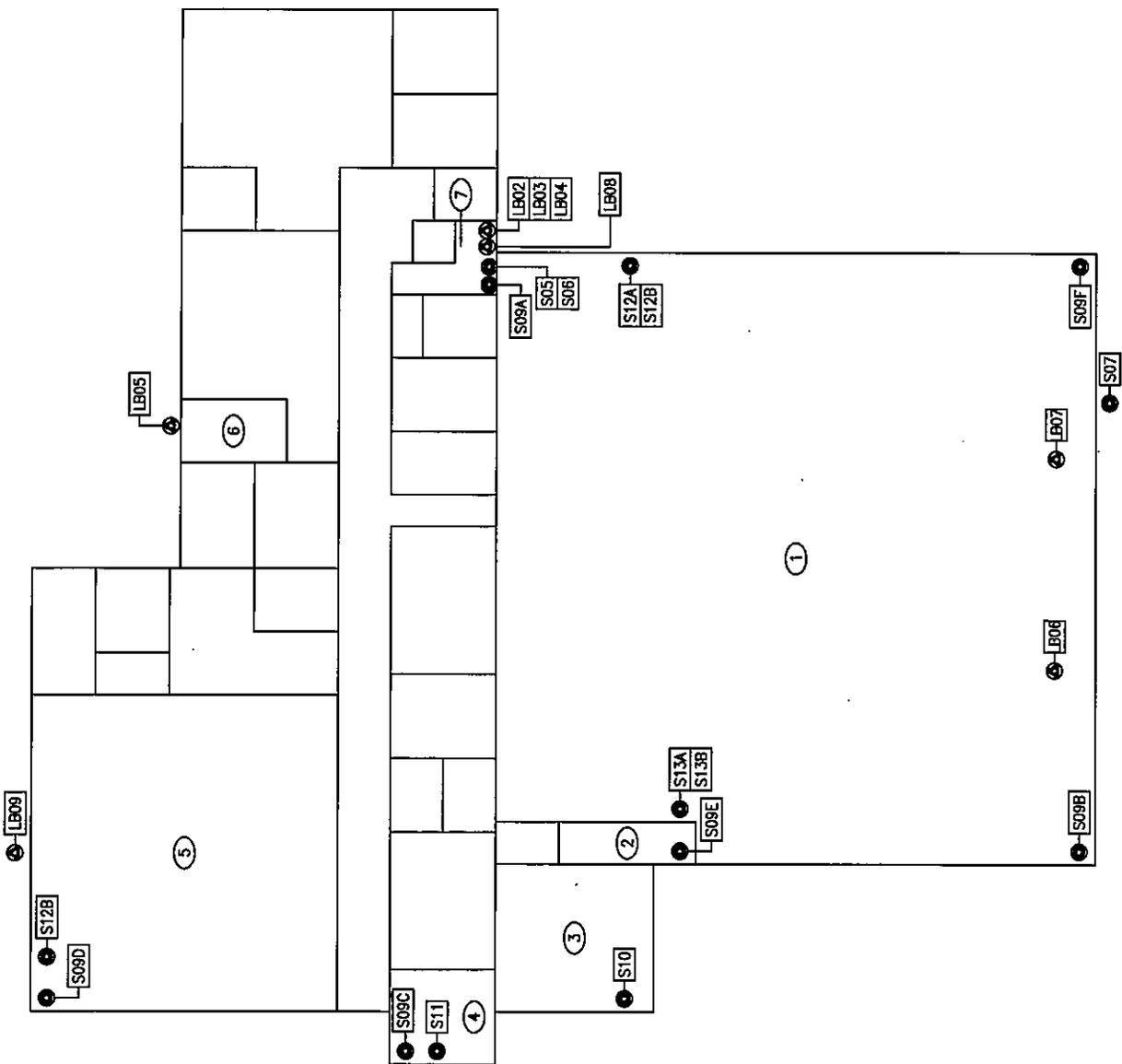
CLIENT:

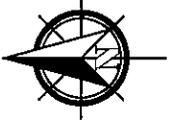
PUBLIC WORKS AND  
GOVERNMENT SERVICES  
CANADA  
641 - 800 BURRARD ST  
VANCOUVER, BC V6Z 2V8

DRAWING NAME:

MAIN LEVEL  
#18 COMBINED SERVICES BUILDING  
SANDSPIT, BC

SCALE: M/S	DRAWN BY: RJB	PROJECT NO: 12168C
DATE: SEP 2011	CHECKED BY: HK	DRAWING NO: 1 of 2





LEGEND

- (XX) LOCATION NUMBER
- ASBESTOS BULK SAMPLE NUMBER
- ⊙ LEAD BULK SAMPLE NUMBER



CLIENT:

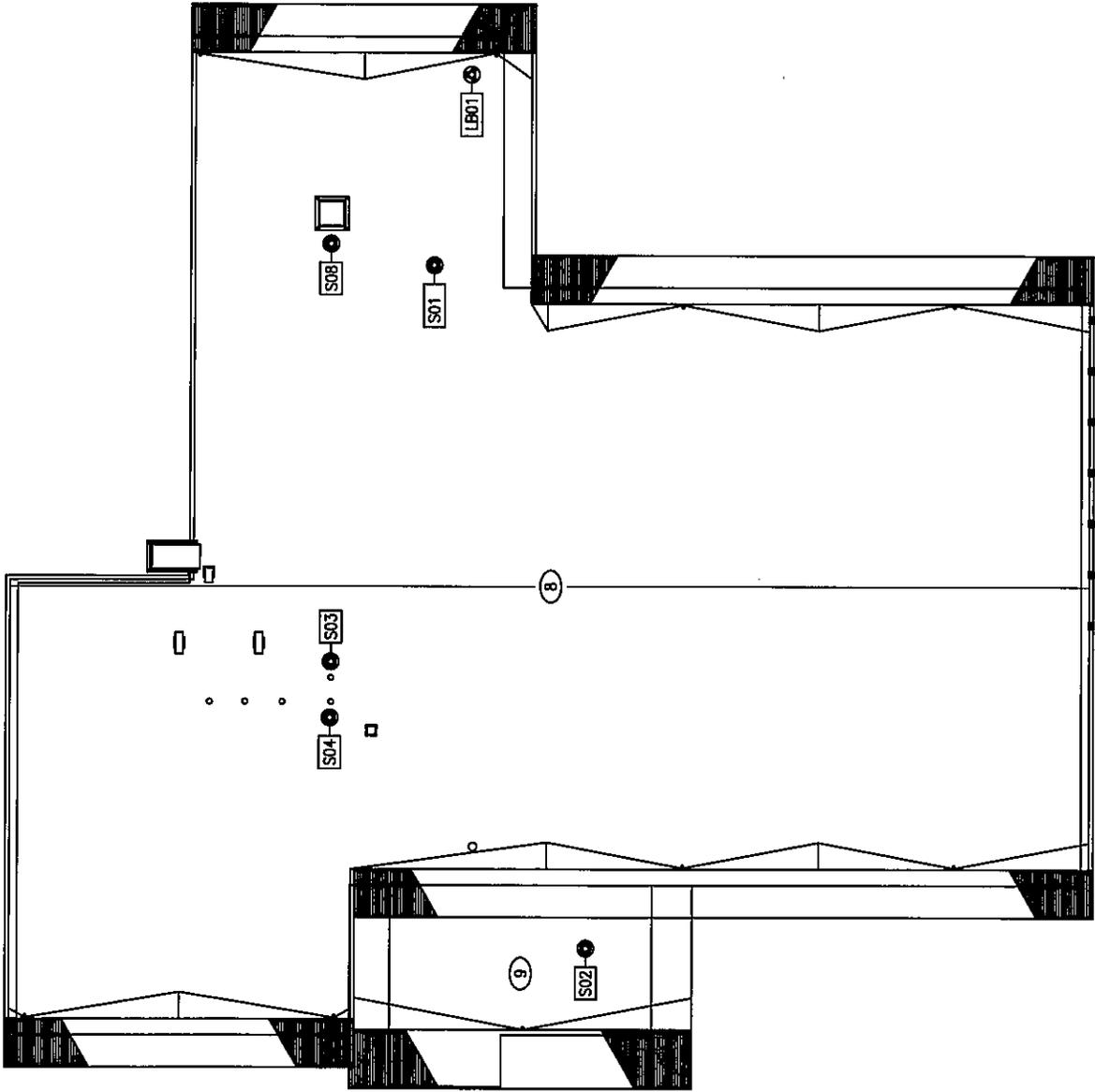
PUBLIC WORKS AND  
GOVERNMENT SERVICES  
CANADA

641 - 800 BURRARD STREET  
VANCOUVER, BC V6Z 2V8

DRAWING NAME:

ROOF  
#18 COMBINED SERVICES BUILDING  
SANDSPIT, BC

SCALE: M/S	DRAWN BY: RUB	PROJECT NO: 12168C
DATE: SEP 2011	CHECKED BY: IH	DRAWING NO: 2 of 2



**APPENDIX IV**  
**PHOTOGRAPHS**



Typical asbestos-containing black window putty applied to glazing of the exterior man doors.



Typical asbestos-containing black window putty applied to glazing of the exterior overhead sectional doors.



Typical asbestos-containing black window putty applied to the glazing of windows on the North and South facades

**APPENDIX V**  
**SPECIFIC METHODOLOGIES**

### ASBESTOS-CONTAINING MATERIALS (ACMs)

Each room or area was categorized into system groups and was further sub-categorized into building materials suspected to contain asbestos as follows:

<b>Systems and Materials</b>	
Floor (e.g. floor tiles, vinyl sheet flooring)	Pipe (e.g. pipe insulation, insulating cement)
Ceiling (e.g. texture coat, ceiling tiles, drywall)	Duct (e.g. insulating cement)
Wall (e.g. drywall, plaster)	Mechanical (e.g. pre-formed insulation, insulating cement)
Structure (e.g. fireproofing, thermal insulation)	Miscellaneous (e.g. debris, cement board)

A separate set of samples was collected of each type of homogenous material suspected to contain asbestos. A homogenous material is defined as material that is uniform in texture and appearance, was installed at one time, and is unlikely to consist of more than one type or formulation of material. Samples were collected at a rate that was in compliance with the requirements of local regulations and guidelines. A sample log of homogeneous materials has been included in Appendix II-B.

The approximate quantity, location and sample locations of suspect ACMs were recorded. Available information on the phases of the construction/renovation and as-built drawings was utilized. Historical information on the use of asbestos in building materials and time frames for the likely presence of asbestos in these materials was taken into consideration.

All bulk samples were submitted to a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory for analysis. The asbestos analysis was completed using a stop positive approach. Stop positive means samples in a homogenous material sample set were analyzed consecutively and when a sample was identified as asbestos-containing, further sample analysis within that sample set was not completed.

**Table A - Definitions of Asbestos**

Jurisdiction	Percent of asbestos in material
British Columbia	1% (some material with <1% may still require special handling).

**LEAD IN PAINT**

Paints were either tested with a direct reading X-ray Fluorescence Analyzer (XRF) or by bulk sampling and laboratory analysis.

**Table B - Criteria for Lead in Paint**

Jurisdiction	Lead by Weight (%)	Lead by Weight (mg/kg)	Lead by Unit Area (mg/cm <sup>2</sup> )
British Columbia	0.06*	600*	0.08**
Alberta	0.5	5,000	1.0
Saskatchewan	0.5	5,000	1.0
Yukon	0.5	5,000	1.0
North West Territories	0.06	600	0.08**
Federal	0.5	5,000	1.0

\* Worksafe BC has adopted the position that the removal of paint with a lead concentration as low as 0.06% (600 mg/kg) by aggressive techniques (i.e. abrasive blasting) can approach the occupational exposure limit. Worksafe BC has also stated that lead concentrations as low as 0.009% (90 mg/kg) may present a risk to pregnant women and children.

\*\* Based on internal studies performed by PHH ARC.

**LEAD PRODUCTS**

Lead building products (e.g. batteries, lead sheeting, flashings) are assumed to contain lead and sampling for laboratory analysis was not performed. Glazing on ceramic tiles and pointing mortar on exterior masonry was tested by sampling and laboratory analysis.

**CRYSTALLINE SILICA**

Building materials suspected of containing crystalline silica (e.g. concrete, cement, tile, brick, masonry, mortar) were identified by knowledge of current and historic applications

and visual inspection only. Sampling of these materials for laboratory analysis of crystalline silica content was not performed.

### **MERCURY**

Building materials/products/equipment (e.g. thermostats, barometers, pressure gauges, light tubes), suspected to contain mercury were identified by visually inspection only. Sampling of these materials for laboratory analysis of mercury content was not performed.

### **POLYCHLORINATED BIPHENYLS (PCBs)**

Light ballast and wet transformers suspected to contain PCB's were determined based on the age of the building, a review of maintenance records and examination of labels on equipment where present and accessible. Light ballasts and wet transformers installed prior the manufacture end date (1980) of PCBs have been detailed in Section 4.0 of this report. Any light ballasts and wet transformers are presumed to be non-PCB if installed after the manufacture end date (1980). Dry transformers are presumed to be free of fluids and hence non-PCB. Sampling of suspect PCB-containing materials for laboratory analysis of PCB content was not performed.

### **HALOCARBONS**

Air conditioning units, chillers and fire suppression systems (fixed and portable) suspected of containing halocarbons was determined by visual inspection of manufactures labels and maintenance records only.

### **MOULD**

Building materials suspected of mould growth were determined through visual observation only. Suspect visible mould was quantified.